

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number
WO 2005/013905 A3

- (51) International Patent Classification⁷: **C12Q 1/00**, A01N 57/00, A61K 31/685
- (21) International Application Number: PCT/US2004/025401
- (22) International Filing Date: 6 August 2004 (06.08.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/493,990 7 August 2003 (07.08.2003) US
- (71) Applicant (for all designated States except US): **AVI BIOPHARMA, INC.** [US/US]; 4575 S.W. Research Way, Suite 200, Corvallis, OR 97333 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **IVERSEN, Patrick L.** [US/US]; 5902 N. W. Fair Oaks Place, Corvallis, OR 97330 (US).
- (74) Agents: **DEHLINGER, Peter, J.** et al.; Perkins Coie LLP, P.O. Box 2168, Menlo Park, CA 94026 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- (88) Date of publication of the international search report:
21 July 2005
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SENSE ANTIVIRAL COMPOUND AND METHOD FOR TREATING ssRNA VIRAL INFECTION

(57) Abstract: The invention provides sense antiviral compounds and methods of their use in inhibition of growth of viruses of the Flaviviridae, Picornaviridae, Caliciviridae, Togaviridae, Coronaviridae families and hepatitis E virus in the treatment of a viral infection. The sense antiviral compounds are substantially uncharged morpholino oligonucleotides having a sequence of (12-40) subunits, including at least (12) subunits having a targeting sequence that is complementary to a region associated with stem-loop secondary structure within the 3'-terminal end (40) bases of the negative-sense RNA strand of the virus.



WO 2005/013905 A3